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The scientific topics of the cruise leg are distributed quite unequally. The centre of interest of the hydrographers on board lies in the region of the Vema Channel at roughly 30 degrees south. In addition two one-person groups from marine and air chemistry take regularly samples for global studies. The Vema Channel represents a submarine gap in the Rio Grande Rise. At the time of its discovery some eighty years ago during the famous Deutsche Atlantische Expedition of FVS METEOR, the channel was called Rio Grande Gap, later Passage as today documented on international maritime charts. Since its discovery the Vema Channel has attracted regularly scientists from all marine disciplines. The American research vessel VEMA was especially heavily involved in projects at the site, why today the name Vema Channel is commonly in use among scientists.

At a glance of a topographic globe one will notice two abyssal basins on the western side of the South Atlantic Ocean, namely the Argentine and the Brazil Basins. They are separated by the Rio Grande Rise. The latter itself is again partitioned by the Vema Cannel. Imagining an ocean without water, one would note certain similarities between the Grand Canon in Arizona and the Vema Channel. The Vema Channel is less then 20 kilometres wide. Seen from its eastern or western rims it drops by 600 meters down to the sill. The saddle depth amounts to 4646 meters. The channel is of extraordinary interest since it provides an outlet for the equatorward spreading of very cold and dense bottom water from the Weddell Sea. The objective of our research aims at choke point observations of fluctuations of Antarctic bottom water utilizing the fennel effect of the channel.

At the foot of both flanks we recovered and re-deployed two deep-sea moorings with current meters and CTD recorders. Additionally CTD stations were occupied. A preliminary view at the obtained data confirms the general warming tendency of order 5 mK/1000 d as observed since the past thirty years.

Our work is part of the German contribution to CLIVAR marin2 sponsored by BMBF, Berlin.

On 2 June we were delighted to receive greetings from the Master of the RRS DISCOVERY, R. Plumley, who was on duty when our two moorings originally were deployed a few days before Christmas 2003. While POLARSTERN is heading northward along 23 degrees west towards the equator we are busy with the rich data harvest from the Vema mooring array 2003/05.

All best wishes from all on board POLARSTERN,
Walter Zenk
Principal Scientist
18° S, 23° W